Action Research Outline
Submitted by: Ericka Richard

INQUIRY-BASED LEARNING AND ITS EFFECTIVENESS IN AN HONORS MATH CLASSROOM

I. FOCUSED TOPIC OF THE ACTION RESEARCH

I choose this topic because I am an honors math teacher and I have been teaching for fourteen years. Over the years I have noticed a push for more inquiry- based learning. I have been intrigued by this style of learning because it allows the students to think on a much deeper level and puts the power of learning in their hands.

A. Context

With all the technology that the students use these days, their style of learning has also changed. Teachers are trying to keep up, but is the traditional way of learning even working these days? With inquiry-based learning, the power of learning is now in the hands of the students. They are now making their own connections to the topics being given to them and mastering the content on a whole deeper level.

B. Key Concepts

a. Understanding the fundamentals of inquiry-based learning.
b. Inquiry-based learning and the effects it has on developing higher-order thinking skills.
c. Inquiry-based learning and the connection it may have on content mastery.
d. Inquiry-based learning and it's correlation, if any, with student engagement and behavior?

II. PURPOSE OF STUDY

The purpose of my study is to figure out the effectiveness of inquiry-based learning with my honors math classes in creating higher-order thinking skills. I would like to see if by using inquiry-based learning if student engagement goes up, content mastery increases, which in turn allows for the students to develop higher-order thinking skills.

III. FUNDAMENTAL RESEARCH QUESTION

A. Primary Question

RQ 1: *How effective is inquiry-based learning in a high school math classroom in creating higher-order thinking skills?*

B. Secondary Questions

RQ 2: *How effective is inquiry-based learning with ensuring students have mastered the math content?*

RQ3: *How effective is inquiry-based learning with student engagement and motivation?*

> Based off of the nature of the research design, RQ2 and RQ3 will be addressed in the study, and they will enable me to better answer my main question and help me determine my outcome.

IV. RESEARCH DESIGN AND DATA COLLECTION (QUALITATIVE, QUANTITATIVE, OR MIXED-METHODS)

A. Overview

I will be using the mixed-methods for my research, since both qualitative and quantitative data are appropriate types of data for this action research. Mertler (2017) explains that by utilizing both data types, the researcher can provide a better understanding of the research problem than just by using one type of data (pg. 106).

B. Qualitative Data

I will plan to use the constant comparative method, where I will be collecting data from all three classes, where I will compare the behavior of the students and even survey them to see how they are doing. The action research will be designed primarily around qualitative data collection since my research does not aim to confirm any preconceived assumptions.

C. Quantitative Data

I will need to gain some quantitative data as well, because I feel that I need to collect more detailed information in order to support my findings. I am planning to compare the students' test scores from last school year with this current school year. The classes will have learned the exact same material as the year prior, just in different ways and I will be able to compare test scores to see which performed at a higher level.

D. Description of Research Design

I will start off at the beginning of the year with three honor math classes. I will begin introducing them to the concept of inquiry-based learning because will be a

new concept to them.   I will have their desk in small groups where they will focus on the lessons using inquiry-based learnings.

I will compare the data from this last school year on Common Assessments and the current school year and compare how the students performed on these Common Assessments.   I will take notes in a daily journal on student behavior, engagement, and student conversations through-out the first semester to see if I can see any trends between the two different types of learnings.

In the end, I will gather all of the data that has been collected and analyze it all to see what the outcome of inquiry-based learning is and to see if it helped in the development of higher-order thinking skills. If it turns out well, I will be sharing my findings with my colleagues.